

DRAFT: KEY DIVERSION PROGRAM ANALYSIS

INTRODUCTION

This attachment contains four main sections:

1. **Program Evaluation Criteria** This section describes the criteria used to evaluate and compare potential programs, including diversion potential, cost benefit, customer convenience, behavior change, and ease of implementation.
2. **Compostable Materials** Compostable materials comprise about 44 percent of the trash Mountain View sends to the SMaRT Station, and is the largest single target for diversion efforts needed to reach Zero Waste. The section provides preliminary analysis of options for collection programs and for enhanced diversion of these materials at the SMaRT Station.
3. **Recyclable Materials** Recyclable materials comprise about 41 percent of the trash Mountain View sends to the SMaRT Station, and are the second largest target for diversion efforts needed to reach Zero Waste. The section provides preliminary analysis of options for collection programs and for enhanced diversion of these materials at the SMaRT Station.
4. **Getting the Rest of the Way There** This section discusses preliminary combinations of programs for reaching the interim goals of 80 percent and 90 percent diversion.

1. PROGRAM EVALUATION CRITERIA

Staff is identifying and analyzing various program options for the Zero Waste Plan, and for possible implementation under the new collection services agreement. Some of these programs primarily represent Zero Waste opportunities, while others may meet other criteria such as customer convenience. The analysis uses five comparative criteria, with High's (H), Medium's (M) and Low's (L) assigned to each. High's are preferable. The following criteria are used in the program analysis presented below.

Diversion Potential Measures the relative role the program can play in reaching Zero Waste. The tonnages shown are midpoints from ranges that reflect the waste characterization data and the experience of dozens of Bay Area communities in implementing these programs, including key factors such as ongoing percentages for participation and the average of material set-out on collection day. The midpoints are realistic planning-level estimates of the potential for diversion.

High (H): Diverts >2,600 tons per year, or > 5 percent of the material now sent to landfill.

Medium (M): Diverts 1,050-2,600 tons per year, or 2- 5 percent of the material now sent to landfill.

Low (L): Diverts < 1,050 tons per year, or <2 percent of material sent to landfill.

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Cost Benefit Measures the relative benefit of the program in dollars per ton of material diverted. The cost per ton reflects costs that match the midpoint tonnages for diversion potential. The costs are based on information from many competitive procurements and negotiations, and from rate reviews conducted for other Bay Area communities. An H means a relatively low cost per ton diverted. The definitions of the ranges are not provided at this time since staff does not wish to inadvertently influence Recology as they are preparing their detailed cost proposal.

Customer Convenience The degree to which enhanced customer convenience is a primary reason to add a program. An H means a relatively high level of enhanced customer convenience.

Behavior Change The degree to which a new or modified program provides the opportunity for positive behavior change towards Zero Waste, e.g., by increasing direct participation of residents or businesses in recycling and compostables recovery. An H means a relatively higher potential for behavior change.

Ease of Implementation Degree to which the program is easy or difficult to add, in terms of level of public outreach and education, coordination between the City and hauler, and coordination with Sunnyvale and the SMaRT Station operator for programs affecting facility operations. An H means a relatively simple implementation.

Greenhouse Gas Emissions With regard to treatment of greenhouse gas emissions in evaluating programs, see Attachment 5, “Greenhouse Gas Emissions”.

Additional Comments Regarding the Criteria The tonnages for Diversion Potential provide a relative and reasonable measure. However, very few programs will divert over 2,600 tons and receive an H. Most programs will receive an M or an L for diversion. Reaching Zero Waste will mean taking many small steps, including implementing a number of programs with L’s or M’s for Diversion Potential and doing so in as cost effective way as possible. Thus, programs with an L or M for Diversion Potential and an M or H for Cost Benefit, respectively, will be the most attractive options.

2. COMPOSTABLE MATERIALS

What are Compostable Materials?

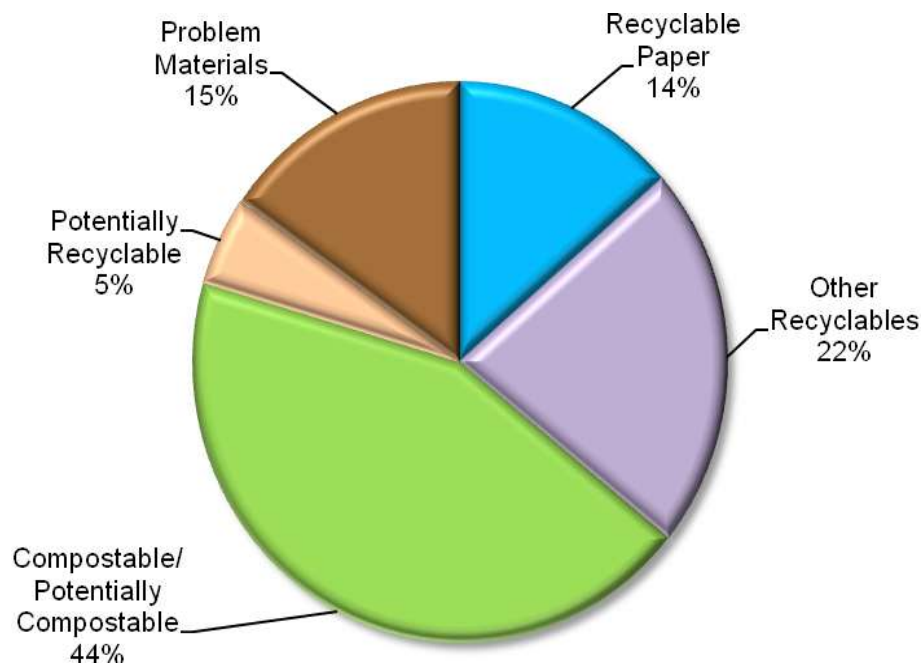
“Compostable materials” (or compostables) are organic materials that can be composted to produce useful products such as mulch and soil additives. Compostables include yard trimmings, food scraps, and compostable paper. “Compostable paper” is comprised of paper that has come in contact with food and thus cannot be recycled, such as paper towels, paper cups, paper plates, paper take-out food packaging, tissues, pizza boxes, and waxed cardboard boxes.

Why is it Important to Divert Compostable Materials from Landfill?

Compostable materials together comprise the largest part of the disposal stream – of what Mountain View residents and businesses send to the SMaRT Station. About 44% of the material collected from Mountain View’s solid waste carts and bins is compostable. In short, Mountain View cannot reach Zero Waste without recovering a substantial percentage of compostables.

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Figure 1 – The Role of Compostable Materials

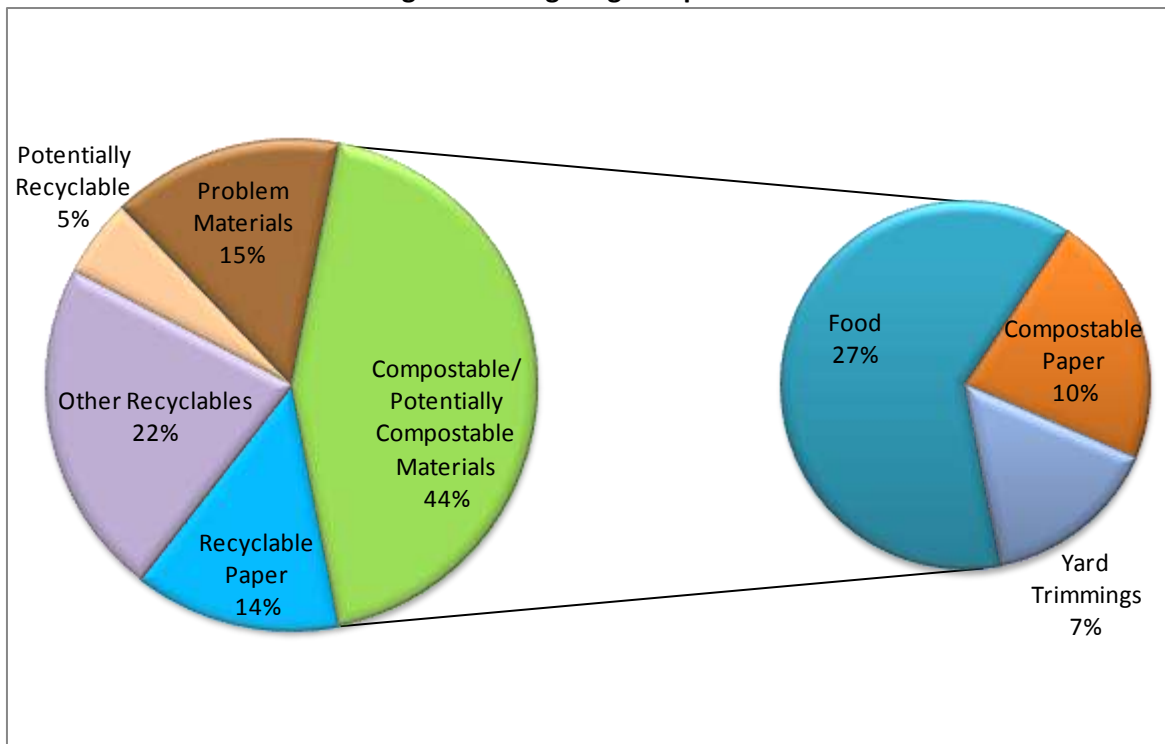


When landfilled, compostables degrade anaerobically (without air), producing methane, a powerful greenhouse gas. When composted, compostables degrade aerobically (with air), and no methane is produced.

Figure 2 shows the relative roles of food, yard trimmings, and compostable paper as constituents of compostable materials. Food scraps are by far the largest component of the compostables we throw out. The percentage of yard trimmings is relatively low, not surprisingly, because of high participation in the curbside collection program.

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Figure 2 – Targeting Compostables



Options for Diverting Compostable Materials

Compostable materials generated in Mountain View can be diverted (i.e., recovered) in the following general ways:

1. Separate collection of yard trimmings for processing as “clean green” material. This program is now offered on an every-other-week basis and enjoys a high level of participation by residents. Options for expanding this program, including providing it weekly, are further explored below.
2. Separate collection of food scraps with yard trimmings. Food scraps (and compostable paper) can be collected with yard trimmings. Under state law food scrap collection would require weekly collection of yard trimmings. These materials would be processed at a composting facility.
3. Removal of compostables in the trash at the SMaRT Station. There are two ways in which compostable materials can be separated and processed. The first is to process the trash inside the SMaRT Station, and the second is to compost some portion of what is now sent from the SMaRT Station to the Kirby Canyon Landfill.

Each of these options is explored below. To the extent materials are separately collected and processed, they will not be available to be recovered at the SMaRT Station. On the other hand, separate collection can result in greater diversion of a “cleaner” material with broader potential uses.

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Collection Options

As discussed earlier, the diversion potentials and cost benefits contained in Figures 3 and 4 reflect midpoints of ranges for each program, and are realistic based on the experience of other communities. However, to the extent programs are more successful, added diversion will result in a lower cost per ton (e.g., a higher cost benefit).

The diversion potential tonnages shown in Figure 4 are not necessarily additive due to “overlap effects”. In some cases, implementing one single-family, multi-family or commercial program could reduce the amount of material available for diversion from a second program offered to that same group of customers because materials are already captured through the first program.

Yard Trimmings

Yard trimmings collection in Mountain View is a “mature program”, one that has been in place for a considerable time and is quite successful. A recent field survey performed by Recology confirms that the single-family program has a high level of participation. Thus, the Zero Waste Plan will focus on maximizing the amount of yard trimmings collected. Figure 3 provides the preliminary results of the analysis, using the evaluation criteria presented above. With regard to Figure 3:

1. Single family weekly collection of yard trimmings will provide relatively little added diversion and could be relatively expensive in terms of total cost for total tons diverted. However, there is some demand for this service on the basis of enhanced customer convenience. Note that adding food scraps to the yard trimmings cart, as discussed in the next section, would require weekly collection.
2. Multi-family collection of yard trimmings for bin customers would be a new program. In most communities, multi-family complexes largely rely on landscapers with the result that there are relatively few yard trimmings placed in the garbage. However, the City’s waste characterization showed, somewhat surprisingly, that there is a significant amount of yard trimmings (about 4,000 tons per year) still disposed in multi-family trash. If implemented in a thorough manner, this program could result in a far higher level of diversion than shown in Figure 3. This program would involve working with property managers to ensure that yard trimmings are either taken offsite by landscapers or are placed in a yard trimmings cart for collection. Note that adding food scraps to the yard trimmings cart, as discussed in the next section, would require weekly collection. However, weekly yard trimmings service (without food scraps) is not shown in Figure 3 as a standalone program because it is not projected to add significant additional diversion.
3. Collection of holiday trees from multi-family bin customers will not produce a large amount of diversion, yet it has a high cost benefit – the total cost is low relative to the total tons diverted. Plus it would provide a high degree of customer convenience.
4. All of the programs have a moderate effect in terms of behavior change related to Zero Waste, and are relatively easy to implement.

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There is an additional option not shown in Figure 3 that could serve as an enhancement to current programs. If Recology's residential collection crews in Morgan Hill identify yard trimmings placed in trash containers, they do not collect the container and leave a tag notifying the resident that such material should be placed in a yard trimmings cart. There is an additional charge if Recology is requested to return to re-collect the trash prior to the customer's next regularly scheduled collection day. It would be of value to request that Recology propose how a similar program might work in Mountain View, with guidance about how it might be structured. For instance, non-collection might occur only after one, or perhaps several incidents of placing yard trimmings in the trash.

Figure 3 – Key Potential Yard Trimmings Programs

	Diversion Potential (Tons)	Cost Benefit	Customer Convenience	Behavior Change	Ease of Implementation
Single- Family Weekly Collection	Low (340)	Low	High	Medium	High
Enhanced Multi-Family Collection -Bi-Weekly	Low (680)	Medium	Medium	Medium	Medium
Multi-Family Holiday Tree Collection	Low (negligible)	High	High	Medium	High

Food Scraps and Compostable Paper

Food scraps collection and processing is currently occurring through a limited pilot in the commercial sector, but is not currently available to residential customers. Figure 4 provides the preliminary results of the analysis, using the evaluation criteria presented above. With regard to Figure 4:

1. A single-family food scrap program would require having weekly yard trimmings service, as discussed for Figure 3. The diversion potential and cost benefit shown in Figure 4 is inclusive of the information shown in Figure 3 for weekly yard trimmings. Based on the midpoint of the ranges, a single-family food scrap program would provide a relatively low amount of added diversion at a relatively high cost per ton. However, such a program can provide significant Zero Waste behavior change over time since it involves recovering an entirely new set of materials. The relative success and cost of a food scrap program in Mountain View, as with other communities will largely be a function of the level of participation – the number of customers willing to separate their food scraps and compostable paper. The ease of implementation is relatively low because of complexity regarding arranging for processing of the material; Mountain View is obligated to deliver yard trimmings to the SMaRT Station but the facility is not equipped to process food scraps. Processing of yard trimmings and food scraps together will require arranging with Sunnyvale and the SMaRT Station operator for processing by a third party, likely as a subcontractor to the SMaRT Station operator.

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2. As noted above, a multi-family food scrap program would also require having weekly yard trimmings service, which is not shown in Figure 3 as a standalone program because it is anticipated that the added diversion would be negligible. The diversion potential and cost benefit shown in Figure 4 is for food scraps only. Based on the midpoint of the ranges, a multi-family food scrap program would provide a low amount of added diversion at a medium cost per ton. Such a program can provide significant Zero Waste behavior change over time since it involves recovering an entirely new set of materials. Similar to a single-family program, the relative success and cost of a multi-family food scrap program in Mountain View will largely be a function of the level of participation. As above, the ease of implementation is relatively low because of the need to arrange with Sunnyvale and the SMaRT Station operator for processing by a third party.
3. The commercial sector currently has a limited pilot program with about 20 participating companies. The pilot program targets materials from company cafeterias. A “new” commercial organics program that targets many types of businesses and that focuses beyond cafeterias, to food retailers and restaurants for example, will have a medium diversion impact with a medium level of cost benefit. As discussed previously, the potential diversion tonnages demonstrate the important role of the commercial sector. Previous comments about behavior change and ease of implementation apply here also. Although not shown below, this type of program, if provided in a universal manner to all eligible businesses over an extended period of time, has the potential of adding another 550 tons per year of diversion. Because these materials will not be collected via a yard trimmings program, processing can be arranged separate from those available at the SMaRT Station, if needed. This adds some complexity and thus ease of implementation is assigned a “medium”.
4. Assessing customer convenience is somewhat difficult for food scraps programs. For a minority of customers, these programs are in high demand. But for most customers the added effort necessary for a food scrap separation program will likely result in a “low” for convenience. Perhaps over time, as the program becomes habitual, customer convenience could receive a “medium”.

Figure 4 – Key Potential Food Scrap Programs

	Diversion Potential (Tons)	Cost Benefit	Customer Convenience	Behavior Change	Ease of Implementation
Single-Family Yard Trimmings with Food Scraps – Weekly	Low (710)	Low	Medium	High	Low
Multi-Family Yard Trimmings with Food Scraps - Weekly	Low (490)	Low	Medium	High	Low
New Commercial Organics Program	Medium (1,250)	Medium	Low	High	Medium

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Facility Processing Options

Analysis of the material sent from the SMaRT Station to the Kirby Canyon Landfill following processing, points to the potential opportunities to increase the capture of compostables. The “residual waste” for the three cities combined still contains about 65,000 tons of food, compostable paper, and “MRF fines”. [See Attachment 3 “Waste Composition” for further information.]

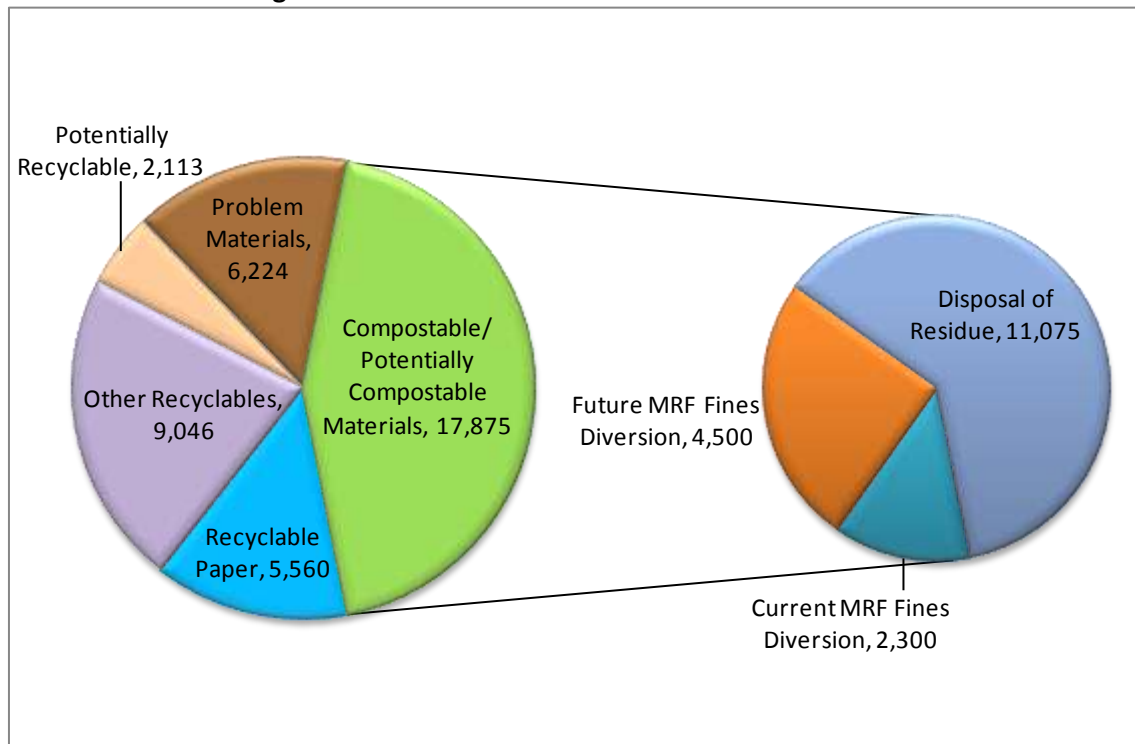
MRF Fines at the SMaRT Station

At the SMaRT Station (a Material Recovery Facility or “MRF”), the material from trash carts and trash bins is processed to recover valuable materials. Currently, a total of about 6,600 tons is recovered on behalf of Mountain View. This is equal to about 12% of the total of 54,800 tons sent to SMaRT in 2010. “MRF fines”, a material rich in organic matter, accounted for about 2,300 tons or almost one-third of what was recovered. MRF fines are small pieces of food, leaves, grass, paper, etc., that are less than 2 inches in diameter, and that are recovered while the garbage is processed in a giant trommel (rotating drum) – as shown in the photos below. This material is collected and sent off-site for composting. Planned near-term improvements in processing equipment have the potential to increase Mountain View’s diversion of fines over the next year to between 6,800 and 7,300 tons. Figure 5 illustrates the SMaRT Station’s current and planned near-term diversion of compostable materials collected from Mountain View residents and businesses in 2010 through recovery of MRF fines.



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Figure 5 – Diversion Role of SMaRT Station MRF Fines



Residual Processing at the SMaRT Station

There is also the potential to recover compostables from the material now sent to landfill following processing within the SMaRT Station. Anaerobic digestion is a technology that may become regionally available in the next few years. In addition, there are other long-term options for processing organic materials such as gasification. These options will be discussed in the Mountain View Zero Waste Plan with an estimate of the possible resulting diversion. However, even if only 10 percent of Mountain View's share of the material now sent to landfill can be recovered, it would represent an additional diversion of about 4,000 tons per year. The other two cities are considering the same range of options as part of their zero waste planning efforts. The three SMaRT cities will have to cooperate regarding any decision to pursue one or more of these approaches, and will share in their costs. One impediment to significant new capital expense at the SMaRT Station is the relatively short remaining period of time, until 2021, for amortizing such expenses.

3. RECYCLABLE MATERIALS

What are Recyclable Materials?

Recyclable materials include the materials collected in the single-family split cart, multi-family group carts, and in commercial recycling bins. New added recyclables could include materials such as gable-topped juice and milk cartons, aseptic beverage containers (e.g., juice and soy milk boxes), and additional plastics (e.g., plant pots). Additional materials might vary for residential and commercial

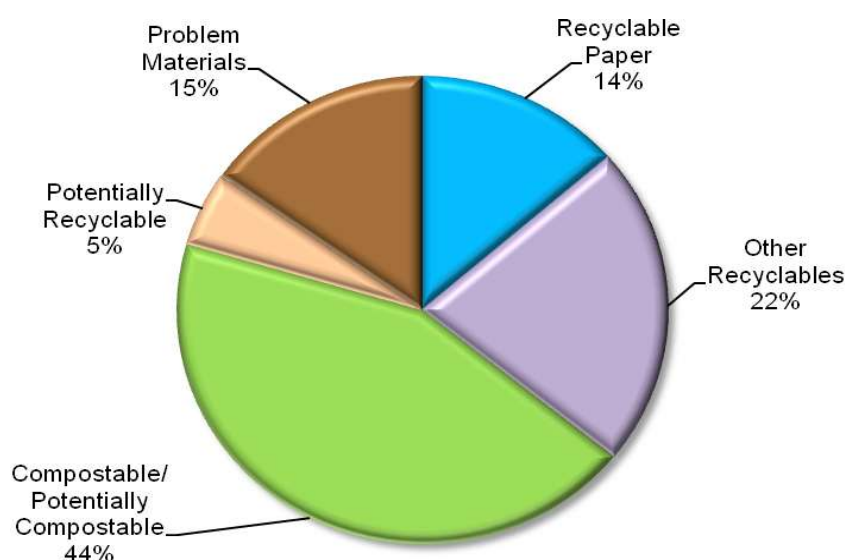
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programs. A primary issue in considering the addition of a new material to a recycling program is to first ensure that markets for the recovered materials are both available and sustainable.

Why is it Important to Divert Recyclable Materials from Landfill?

1. As shown in Figure 6, recyclable materials together comprise about 41% of the material collected from Mountain View's solid waste carts and bins and sent to the SMaRT Station. Mountain View cannot reach Zero Waste without recovering a substantial percentage of the remaining recyclable materials.

Figure 6 – The Role of Recyclable Materials



2. The collection and processing of each ton of recyclable materials to make it available for use in new products has a dramatic impact in reducing greenhouse gases (GHG) compared to extracting virgin materials and manufacturing a "new" ton of the material. The benefits vary for various types of recovered paper, metals, and glass. [See Attachment 5 "Greenhouse Gas Emissions" for further information.]

Figures 7 and 8 focus on recyclable paper and other recyclables, respectively. Together they represent the greatest potential for recovery.

Figure 7 shows the relative roles of cardboard, newspaper, office (high grade) paper, and catalogs, magazines and phone books, as part of the 14 percent of the trash that is recyclable paper. Although "mature" recycling programs focused on paper account for a large amount of diversion, the data tell us that cardboard, office paper, and newspaper together still comprise nearly 10 percent of the trash sent to the SMaRT Station. Cardboard, at 5 percent of the total trash generated in Mountain View is the single best recyclable paper target for enhanced recovery in both residential and commercial programs.

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Catalogs, magazines, and phone books represent additional targets for recovery, as well as for reduction and reuse.

Figure 7 – Targeting Recyclable Paper

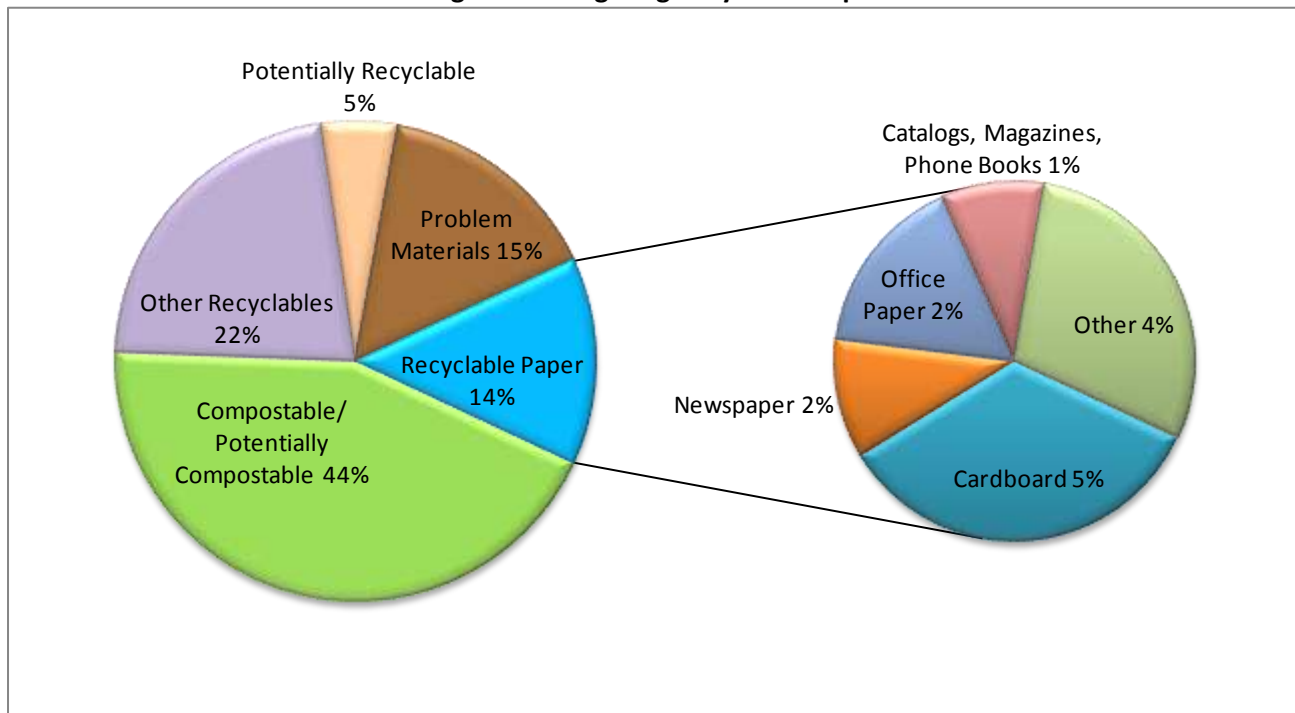
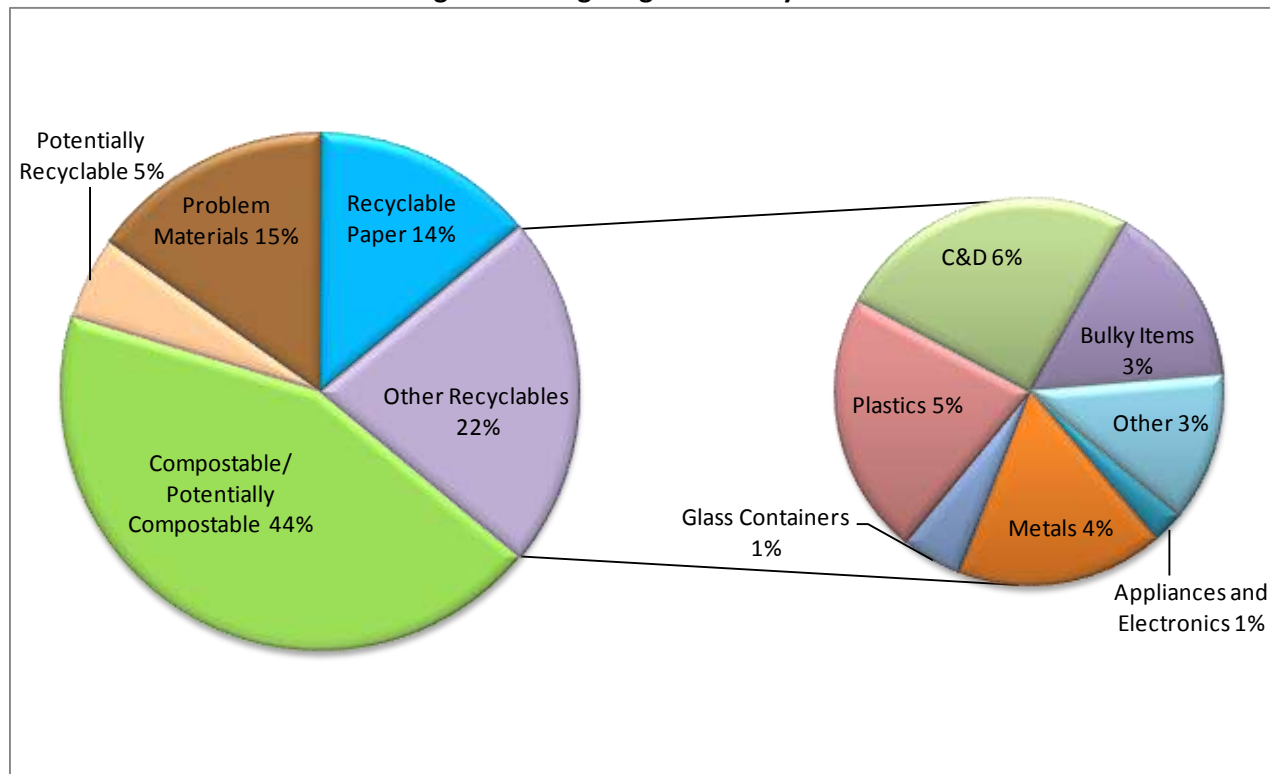


Figure 8 illustrates the role of a variety of other recyclable materials that together comprise 22 percent of the remaining trash. Construction and demolition materials (C&D) materials, plastics, and metals together comprise about 15 percent of the material remaining in the trash, and are all viable targets for diversion programs.¹

¹ “Construction and demolition materials (C&D)”, for the purpose of this analysis refers only to the relatively small amount of materials such as carpet, pallets, wood, and rock that are disposed in the trash by Mountain View residents and businesses. This does not include the much larger amounts of C&D material collected in separate, dedicated containers from construction sites.

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Figure 8 – Targeting Other Recyclables



Options for Diverting Recyclable Materials

Recyclable materials currently being disposed by residents and businesses in Mountain View can be diverted (i.e., recovered) in the following general ways:

1. Separate collection of recyclable materials. Recyclable materials programs will be a key focus for the Zero Waste Plan and the new collection agreement, including maximizing the efficiency of the current residential and commercial programs, as well as possibly adding new materials. Single-family and multi-family recycling programs are now offered on an every-other-week basis and they enjoy a high level of participation by residents. Options for expanding this program, including providing it weekly are further explored below. Commercial recyclable materials are currently collected and processed as a single-stream.
2. Removal of recyclable materials in the trash delivered to the SMaRT Station. There are several ways in which various recyclable materials can be separated and processed. Materials such as cardboard, office paper, bulky items, and construction and demolition material are separated from the material unloaded on the floor of the SMaRT Station from incoming trucks, prior to the materials being sent over a sorting line. Most of the recovery occurs through a combination of mechanical methods and hand-picking from sorting lines. However, the material sent to landfill still includes thousands of tons of recyclable materials.

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Each of these options is explored below. To the extent materials are separately collected and processed, they will not be available to be recovered at the SMaRT Station. On the other hand, separate collection can result in greater diversion of a “cleaner” material that can be sold for greater revenue, and with broader potential uses.

Collection Options

As discussed earlier, the diversion potential and cost benefits shown below reflect midpoints of ranges for each program, and are realistic based on the experience of other communities. To the extent programs are more successful they will result in added diversion at a lower cost per ton (e.g., a higher cost benefit).

Recyclable materials collection in Mountain View is a “mature program”, one that has been in place for a considerable time and is quite successful. A recent field survey performed by Recology confirms that the single-family program has a high level of participation. This high level of high participation is a key reason why the City already has a high diversion rate, but it also limits opportunities for added diversion through these existing programs. Thus, the Zero Waste Plan will focus on maximizing the amount of recyclable materials collected. Figure 9 provides the preliminary results of the analysis, using the evaluation criteria presented above.

Figure 9 – Key Potential Recyclable Materials Programs

	Diversion Potential (Tons)	Cost Benefit	Customer Convenience	Behavior Change	Ease of Implementation
Universal Recycling for Multi – Family	Low (560)	High	High	High	High
Universal Recycling for Commercial	Medium (1,200)	High	High	High	High
Single-Family Weekly Collection	Low (430)	Medium	High	Medium	High
Multi-Family Weekly Collection	Low (100)	Low	High	Medium	High
Adding New Recyclables – Single-Family	Low (90)	High	Medium	High	Medium
Adding New Recyclables – Multi-Family	Low (80)	High	Medium	High	Medium
Adding New Recyclables – Commercial	Low (350)	High	High	High	Medium
Commercial Re-Routing	High (2,845)	High	Medium	Low	High

Figure 9 includes four types of programs - universal service, weekly service, added recyclable materials, and commercial re-routing to maximize dry loads - with varying applicability to single-family, multi-family and commercial customers, as discussed below:

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1. "Universal service" refers to services offered to all residents or businesses in a given customer type, (e.g., single-family cart customers, multi-family bin or cart customers, commercial customers, etc.) Almost all single-family customers have a recycling cart, and participation is high. However, providing universal service to all multi-family and commercial customers could have impressive results for added diversion at a relatively low price. Recent state legislation (AB 818) mandates provision of service to multi-family customers. Both programs would provide a high level of customer convenience, would foster behavior change towards Zero Waste, and would be relatively easy to implement.
2. Shifting from every-other-week to weekly collection of single-family and multi-family recyclables could increase diversion at a relatively moderate to high cost. While providing Zero Waste benefits, a primary reason to consider such programs is the high level of customer convenience associated with weekly collection, including the potential for some customers to reduce the number of carts they need. Conversely, these programs result in additional staffing, more trucks, and added traffic. Single-family and multi-family weekly collection would both be relatively easy to implement.
3. More types of recyclables could be added to the residential programs, as well as to the commercial single-stream program. While diversion potential is relatively low, the cost benefit is medium or high for each customer type, and all three would provide a relatively high level of behavior change. The personal perception of customer convenience for residents related to adding more types of recyclables may be highly variable, and the single-family and multi-family programs are assigned a medium. For commercial customers in particular, added recyclables could result in reduced trash service and a lower bill. Thus Figure 4 assigns a high to customer convenience for commercial customers. Ease of implementation is assigned a medium, reflecting the fact that recycling more types of materials requires outreach effort, changes in customer habits, and market acceptance of the recovered materials.
4. Another option for increasing recovery for commercial recyclables is to adjust commercial collection routes so that customers with drier materials are collected together, maximizing the amount of cardboard and office paper available for floor separation at the SMART Station. The diversion potential and cost benefit are both high, and it may actually result in an overall cost decrease when collection, processing and disposal are all considered. It is possible that re-routing may result in some need for added staff and/or trucks. Re-routing of collection is largely invisible to the customer, except to the extent that a collection day might change. For these reasons it is assigned a medium for customer convenience and a low for behavior change. Ease of implementation would be relatively high.

Note that the diversion potential tonnages shown in Figure 4 are not necessarily additive due to "overlap effects". In some cases, implementing one single-family, multi-family or commercial program could reduce the amount of material available for diversion from a second program offered to that same group of customers because materials are already captured through the first program.

There is an additional option not shown in Figure 9 that could serve as an enhancement to current programs. If Recology's residential collection crews in Morgan Hill identify cardboard placed in trash

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containers, they do not collect the container and leave a tag notifying the business or resident that such material should be recycled. There is an additional charge if Recology is requested to return to re-collect the trash prior to the customer's next regularly scheduled collection day. It would be of value to request that Recology propose how a similar program might work in Mountain View, with guidance about how it might be structured. For instance, non-collection might occur only after one, or several incidents of placing cardboard in the trash.

Facility Processing Options

Analysis of the material sent to the Kirby Canyon Landfill after being processed at the SMaRT Station points to the potential opportunities to increase the capture of recyclable materials within the SMaRT Station. The "residual waste" still contains thousands of tons of cardboard, and various other types of paper. [See Attachment 3 "Waste Composition" for further information.]

Floor Sorting at the SMaRT Station

As noted above, some materials are separated from the material unloaded on the floor of the SMaRT Station from incoming trucks. There are potential ways to increase this recovery. For instance, as discussed above with collection options, one approach is to adjust commercial collection routes so that customers with drier materials are collected together, maximizing the amount of cardboard and office paper in each load and the ability to more easily separate and recover them. A second approach is to modify sorting techniques on the floor of the SMaRT Station. Sunnyvale staff and the facility operator continuously look for ways to enhance these types of recovery.

Hand Sorting at the SMaRT Station

Much of the SMaRT Station's recovery of paper, glass, and metals occurs when sorters pick materials off the conveyor belt by hand. As with floor sorting, Sunnyvale staff and the facility operator, and Mountain View and Palo Alto as participating cities, continuously look for ways to enhance this process under the current operations agreement. In addition, there may be opportunities to amend the current SMaRT Station operating agreement to add new incentives for increased recovery.

The above options will be discussed in the Mountain View Zero Waste Plan with estimates for added diversion and for cost, as available. In general, the three SMaRT cities will need to cooperate regarding decisions to pursue these approaches, and will share in their costs.

4. GETTING THE REST OF THE WAY THERE

Overview

Mountain View enjoys a relatively high current diversion rate of about 73 percent (4-year average). The draft Zero Waste vision and goals are to reach 80 percent diversion by 2015 and 90 percent by 2020 [See Attachment 4, "Vision and Goals"]. How will these goals be reached? Most communities must rely primarily on collection programs to reach high levels of diversion. But as discussed above in the Compostable Materials and Recyclable Materials sections, Mountain View has two opportunities to add

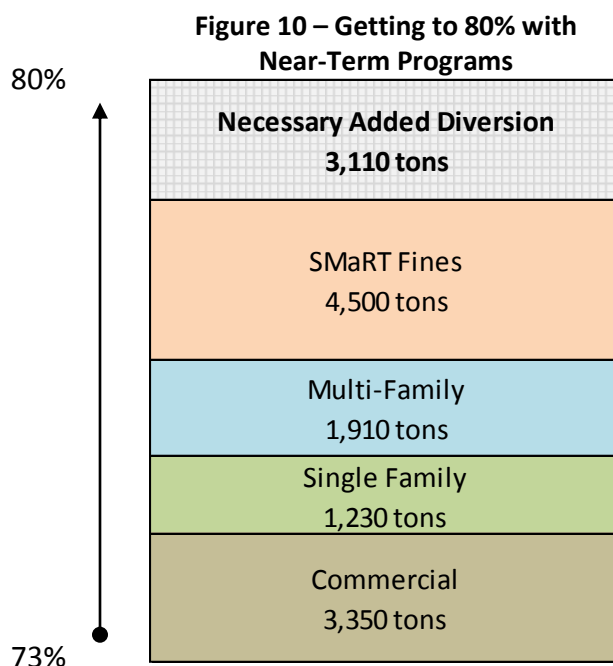
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significant diversion – through collection programs that separate specific materials for processing and diversion, and through added processing and diversion of the trash delivered to the SMaRT Station. In practice, Mountain View will rely on a combination of these two approaches.

This section focuses on using collection programs and planned processing of MRF fines at the SMaRT Station to get towards 80 percent diversion, and on additional diversion (as yet unplanned) at the SMaRT Station and other City and non-City programs to get from 80 to 90 percent diversion. The sequencing of programs detailed below is likely to provide the most cost-effective means of approaching Zero Waste. For longer-term SMaRT Station programs, the interest of the partner cities, technical feasibility of options, and cost, are to varying degrees all unknowns at this time. Thus, it makes sense for Mountain View to maintain flexibility by obtaining optional pricing for possible enhanced and new collection programs, whether such programs get implemented in 2013, later during the term of the new collection agreement following evaluation of enhanced SMaRT Station processing options, or never.

Near-Term Programs to Get to 80 Percent

Figure 10 shows how a set of near-term programs could combine to get Mountain View close to 80 percent by 2015. Figure 10 is a simplified snapshot in time showing what would be required today to get to 80 percent diversion tomorrow. The projections contained in the Zero Waste Plan will be much more detailed, using projected annual growth rates from the pending General Plan Amendment for population and employee growth in Mountain View, and showing the effect of phasing in programs over time to reflect how they would actually be implemented. The final projections may show a somewhat different result. But Figure 10 is valuable for illustrating the importance of programs for which collection services pricing can be requested, the importance of the commercial sector, the key role of the SMaRT Station, and the true challenge of getting to 80 percent.



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The total tons of diversion shown in Figure 10 for single-family, multi-family and commercial sector programs will come from enhanced and new collection programs. The new collection services agreement scheduled to commence in April 2013 will have a major role to play in helping reach the 80 percent goal. The aggregate tons shown for single-family, multi-family and commercial sector programs reflect the key programs described previously in the Compostable Materials and Recyclable Materials sections, as well as additional smaller programs with lower cost and lower diversion.

In each case, as discussed in the Evaluation Criteria section, the tons represent a realistic mid-point of a range of possible diversion based on the available material for recovery and the experience of other communities. Diversion and cost benefit can both improve when programs are well designed and implemented, with maximized participation.

The SMaRT Station fines tonnage is reduced from the figures shown in the discussion of compostable materials programs to reflect the “overlap effect”, the need to avoid double counting of diversion. For instance, to the extent compostable materials are removed from the trash through separate curbside collection, they will not be available for recovery from the trash delivered to the SMaRT Station.

As Figure 10 illustrates, with these realistic, mid-range diversion estimates the City can approach an 80 percent diversion rate. However, in this snapshot there is a gap of about 3,100 tons per year needing to be filled to reach the 80 percent goal. The challenge will be to close the gap - exceeding the midpoint estimates for diversion by maximizing the effectiveness of new and enhanced programs, and by taking any available near-term actions that can further improve recovery at the SMaRT Station.

Figure 10 also illustrates the key role of the commercial sector in addressing Zero Waste. About two-thirds of Mountain View’s trash delivered to the SMaRT Station is from the commercial sector and key potential programs can divert more from this sector than from single-family and multi-family customers combined. In addition, the commercial sector’s role in producing trash will increase over time since the General Plan Amendment projects that the annual employee growth rate will be significantly higher than that for population.

Approaching 90 Percent

Getting from 80 to 90 percent diversion will require many activities in addition to collection programs that affect every aspect of product manufacture and design, product purchasing, use of products, and the “end-of-life” management of discarded products. Some of these actions will directly result in increased diversion, while others will alter consumer and business behavior in ways that are difficult to quantify but that will reduce disposal needs over time.

Figures 11, 12 and 13 are not inclusive of all options and the descriptions are not exhaustive, but rather each figure illustrates how a Zero Waste future will involve decisions in three key areas over which the City will have varying degrees of control. Figures 11, 12 and 13 do not include new or enhanced collection programs, although program implementation may well occur during this period as well. As the following discussion highlights, neither Mountain View nor any other community can get to Zero Waste on its own.

DRAFT: KEY DIVERSION PROGRAM ANALYSIS

Figure 11 features key issues for which the City is the primary decision maker. For the most part, these are activities that do not involve changes to collection programs.

Figure 11 – City Decisions

Option	Description
Construction and Demolition Material (C&D) Requirements	Modify the threshold for project size to which diversion requirements apply and/or increase the minimum diversion requirement of 50 percent for some or all applicable materials.
Product Bans	Adopt bans on products such as single use bags and polystyrene food to-go containers.
Increased Reuse Options	Actively encourage, and possibly partner with not-for-profits to enhance retail options for reuse for residents and businesses; publicize and encourage use of on-line reuse tools such as “Freecycle”, etc.
Repair Options	Actively encourage, and possibly partner with not-for-profits to enhance options for repair of appliances and other products.
Environmentally Preferable Purchasing Policies and Use of Products	Strengthen and expand current City purchasing policies and programs to maximize purchase of recycled products, and reuse and recycling of materials after use.
Voluntary Extended Producer Responsibility (EPR)	Work with local product retailers wholesalers, and distributors to encourage voluntary “take-back” programs.

Figure 12 refers to a set of decisions over which the City has shared control in cooperation with Sunnyvale and Palo Alto. The three cities are all involved in individual Zero Waste efforts, as well as considering options for increasing diversion at the SMaRT Station.

Figure 12 – Smart Station

Option	Description
Self-Haul Recycling	Maximize any remaining opportunities to recover recyclables and yard trimmings from self-haul materials.
Disposal Ban	Recover specific materials such as cardboard or yard trimmings to ensure that none of targeted material is left in the residuals sent to the Kirby Canyon Landfill.
Construction and Demolition Material (C&D) Recovery	Enhance existing recovery ability, and/or add new equipment to further divert and process C&D materials such as untreated wood, asphalt, and concrete.
Residuals Processing	Compost, or otherwise process and divert the organic portion of the residuals now sent to the Kirby Canyon Landfill.

DRAFT: KEY DIVERSION PROGRAM ANALYSIS

Figure 13 refers to changes in private sector practices, whether voluntary or in response to state or national regulatory mandates. These changes are already beginning to happen, but for the most part the City cannot exert direct control over decisions regarding these practices. The City will play an indirect role whether acting regionally with other communities, or through membership in advocacy organizations. In addition, the City is home to the headquarters of major offices of a number of trend setting corporations, many of which are active in sustainability.

Figure 13 – Private Sector

Option	Description
Extended Producer Responsibility (EPR)	Maximize reuse and recyclability of products through their lifecycle, including taking them back and paying for “end-of-life” management following consumer use through advanced disposal fees (ADF’s) or other mechanisms.
Packaging Design	Improve packaging design to minimize use of materials and maximize reuse and recycling opportunities.
Environmentally Preferable Purchasing Policies and Use of Products	Institute purchasing policies and programs to maximize purchase of recycled products and reuse and recycling of materials after use.
Disposal Bans	Institute mandatory bans on disposal of specific materials, such as cardboard and yard trimmings that force development of programs for separate collection and/or processing of the materials.